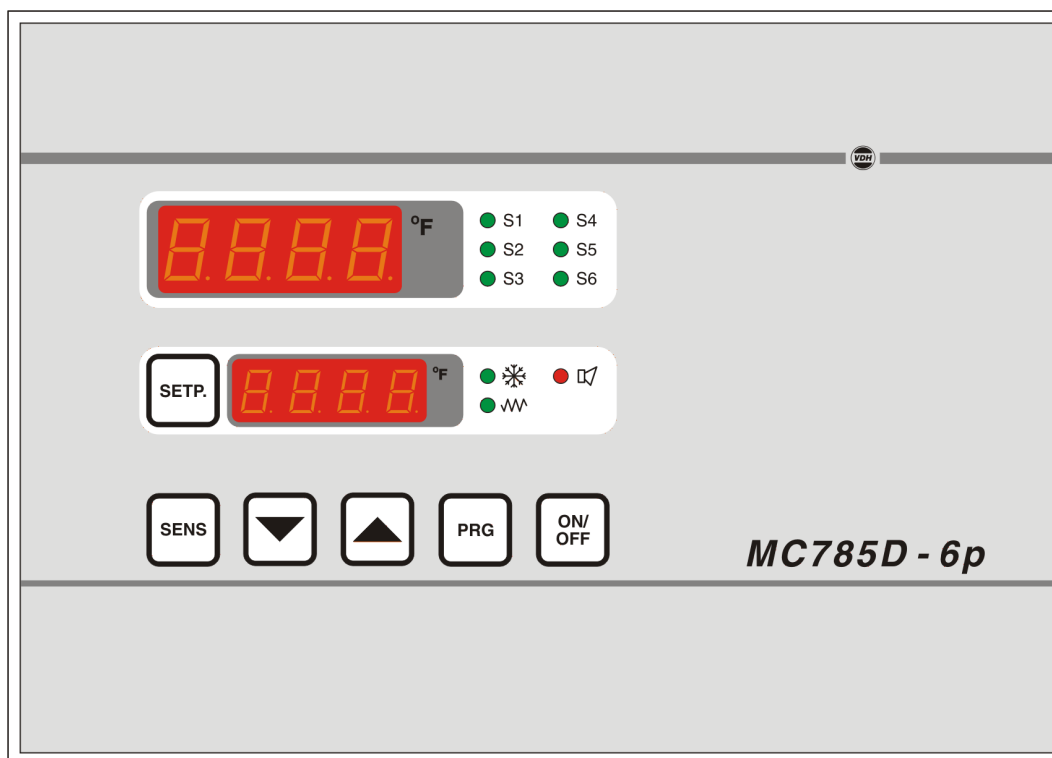


MC 785D-6p °F

wall or panel mount

User manual



Description : MC 785D-6P °F Thermostat with max. 6 temp.sensors		Doc.nr.:	061775
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Software:	MC785D-6P Version: V1.00	Date:	22-06-2006
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1. Technical specifications

General

Type	: MC 785D-6P °F
Wall mount version:	
Housing	: Grey plastic
Material	: Polystyrol 454h KG 2 natur BASF
Dimensions	: 213 x 180 x 85mm (whd)
Front	: Polycarbonate (IP-44)
Panel mount version:	
Housing	: Steel panel mount housing
Material	: Steel painted silver grey
Dimensions	: 217 x 155 x 85mm (whd)
Panel cut	: min. 208 x 146mm (wh)
Front	: Polycarbonate (IP-44)
Range	: -40/+120°F per 0,1°F
Power supply	: 120 Vac; 50/60 Hz (-10/+5%) (or other see sticker)
Power consumption	: 9 VA
Operating temperature	: -5/+120°F
Store temperature	: -5/+140°F
Operating RH	: 10/+90 % RH not condensing
Accuracy	: ± 0,5 % of the range

Front

Display	: 4-digit digital display for temperature indication
	: 4-digit digital display for setpoint indication
LED's	:  = Led Relay cooling active
	:  = Led Relay heating active
	:  = Led Alarm active
	S1 = Temperature sensor 1 read-out
	S2 = Temperature sensor 2 read-out
	S3 = Temperature sensor 3 read-out
	S4 = Temperature sensor 4 read-out
	S5 = Temperature sensor 5 read-out
	S6 = Temperature sensor 6 read-out
Keys	: ON/OFF = On/off key controller
	PRG = Program key
	▲ = Up key
	▼ = Down key
	SENS = Sensor read-out key
	SETP. = Setpoint key

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In- and Outputs

Sensors	: Sensor 1	(Pt-100, 3-wire to DIN/IEC 751)
	Sensor 2	(Pt-100, 3-wire to DIN/IEC 751)
	Sensor 3	(Pt-100, 3-wire to DIN/IEC 751)
	Sensor 4	(Pt-100, 3-wire to DIN/IEC 751)
	Sensor 5	(Pt-100, 3-wire to DIN/IEC 751)
	Sensor 6	(Pt-100, 3-wire to DIN/IEC 751)
Relays	: RY1 Alarm	(C/NO/NC, 250Vac/10A not inductive)
	Normal C-NO is closed, at alarm C-NC is closed.	
	Following relays have one central common;	
	RY2 Function-1	(NO, 250Vac/10A not inductive)
	RY3 Function-2	(NO, 250Vac/10A not inductive)
Others	: Network connection	(option)

2. Functional specifications

The MC 785D-6P is a thermostat, to which a maximum of six temperature sensors can be connected. The temperature is controlled on the average of the active sensors.

The thermostat can be programmed with the control functions;

- one stage cooling (RY2) or
- two stage cooling (RY2 and RY3) or
- one stage heating (RY2) or
- two stage heating (RY2 and RY3) or
- cooling (RY2) and heating (RY3).

The MC 785D-6P has an alarm relay, which switches on if the temperature of one of the sensors drops below or above the preset alarm levels.

The selection of the above mentioned settings is done thru the Internal Parameters.

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3. Operation

Normally the temperature display shows the average temperature of the active control sensors and the setpoint display the current setpoint. De LED's S1 to S6 indicate which temperature sensors are active and the status LED's show if the thermostat is cooling, heating or if there is an alarm.

Read-out of the sensors.

Press the **SENS** key. The LED S1 lights and in display shows the temperature of sensor 1. By pressing the **SENS** key again, the other sensors can shown.

When all sensors are displayed, the average temperature appears again in the display.

Changing the setpoint.

Push simultaneously on the **SETP.** and the **UP** or **DOWN** key to change the setpoint.

Switching sensors on and off.

Push the **SENS** and **PRG** key simultaneously. The upper display shows the text S1 and the lower display ON if the sensor is switched on or OFF if the sensor is switched off. By pressing the **SETP.** key, the sensor can be switched ON or OFF. If the sensor is switched off in this way, the sensor can still be read out but it doesn't count in the regulation.

With the **UP** and **DOWN** keys the other sensors can be watched and switched ON or OFF as above mentioned.

Reset the alarm.

As soon as an alarm situation occurs and an error message in the display appears, can by pressing the **PRG** key, the alarm be reset.

The error message remains in the display, until the cause of the error is solved.

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4. Programming Internal Settings

By pressing the **PRG** key for more than 5 seconds, the Internal Parameters are shown. In the upper display appears a P with a number. With the **UP** or **DOWN** key the required parameter can be selected. The value of the parameter is shown in the lower display.

By pushing the **SETP.** and the **UP** or **DOWN** key simultaneously, the value of the parameter can be changed.

If during 30 seconds no key is touched or if the **PRG** key is pressed, the display returns to the normal operation mode.

Parameter table.

Number	Description	Range	Unit	Default
P 01	Function thermostat 0 = 1x cooling 1 = 2x cooling 2 = 1x heating 3 = 2x heating 4 = cooling/heating	0..4	-	4
P 02	Differential function 1	0.0..+30	°F	1.0
P 03	Offset function 1	-30..+30	°F	0.0
P 04	Differential function 2	0.0..+30	°F	1.0
P 05	Offset function 2	-30..+30	°F	0.0
P 11	Sensor 1 present	0..1	-	1
P 12	Sensor 2 present	0..1	-	1
P 13	Sensor 3 present	0..1	-	1
P 14	Sensor 4 present	0..1	-	1
P 15	Sensor 5 present	0..1	-	1
P 16	Sensor 6 present	0..1	-	1
P 21	Offset Sensor 1	-20..+20	°F	0.0
P 22	Offset Sensor 2	-20..+20	°F	0.0
P 23	Offset Sensor 3	-20..+20	°F	0.0
P 24	Offset Sensor 4	-20..+20	°F	0.0
P 25	Offset Sensor 5	-20..+20	°F	0.0
P 26	Offset Sensor 6	-20..+20	°F	0.0
P 30	Minimum alarm temperature	-40..+120	°F	-40.0
P 31	Maximum alarm temperature	-40..+120	°F	+120.0
P 32	Min. alarm delay	0..99	Minutes	30
P 33	Max. alarm delay	0..99	Minutes	30
P 34	Alarm relay off after reset alarm	0 = No 1 = Yes	-	0
P 40	Minimum setpoint	-40..+120	°F	-40.0
P 41	Maximum setpoint	-40..+120	°F	+120.0
P 42	Read-out above -10°F per degree	0 = No 1 = Yes	-	0
P 43	Read-out below -10°F per degree	0 = No 1 = Yes	-	1
P 90	Network number	1-99	-	1
P 97	Software version number	-	-	-
P 98	Serial number	-	-	-
P 99	Production date	-	year/wk	-

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5. Operation of relay outputs

Operation of the cooling and heating.

2x cooling:

Cooling 1 (RY2) switches on if the temperature is higher then **setpoint + offset_1 + differentie_1** en switches off if the temperature is lower then **setpoint + offset_1**.

Cooling 2 (RY3) switches on if the temperature is higher then **setpoint + offset_2 + differentie_2** and switches off if the temperature is lower then **setpoint + offset_2**.

2x heating:

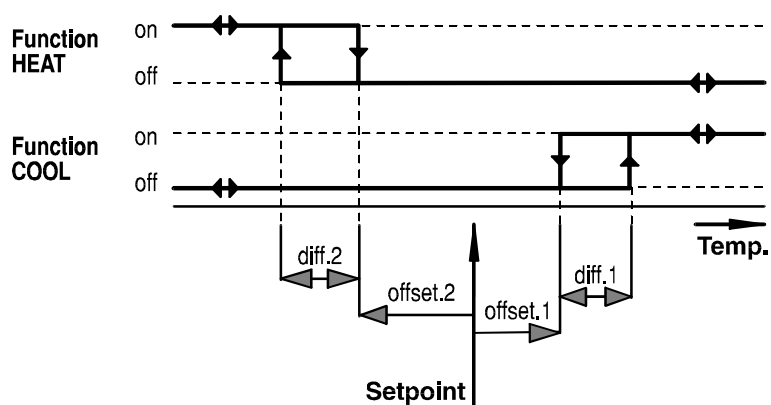
Heating 1 (RY2) switches on if the temperature is lower then **setpoint + offset_1 - differentie_1** and switches off if the temperature is lower then **setpoint + offset_1**.

Heating 2 (RY3) switches on if the temperature is lower then **setpoint + offset_2 - differentie_2** and switches off if the temperature is lower then **setpoint + offset_2**.

Cooling/heating:

Cooling (RY2) switches on if the temperature is higher then **setpoint + offset_1 + differentie_1** and switches off if the temperature is lower then **setpoint + offset_1**.

Heating (RY3) switches on if the temperature is lower then **setpoint + offset_2 - differentie_2** and switches off if the temperature is higher then **setpoint + offset_2**.



Function Diagram Cool/Heat

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6. Sensor calibration

With the parameters P21 to P26 the sensors can be calibrated. Indicates e.g. a sensor 0.2°F too much, that offset-parameter must be set 0.2°F lower.

7. Alarms

If there is no alarm, the alarm relay is on and during alarm the alarm relay drops. Now also an alarm is given during a power failure. During alarm the alarm LED on the front flashes.

An alarm can be caused by:

- No control sensor present (F1)
- Sensor broken (E1, E2, E3, E4, E5 or E6).
- A sensor gives a minimum or maximum alarm (LO or HI).

By pressing the **PRG** key during alarm, the alarm relay will be reset. The alarm message remains in the display during the failure. Also the alarm LED will continue flashing.

Temperature alarm: LO = Minimum alarm
 HI = Maximum alarm

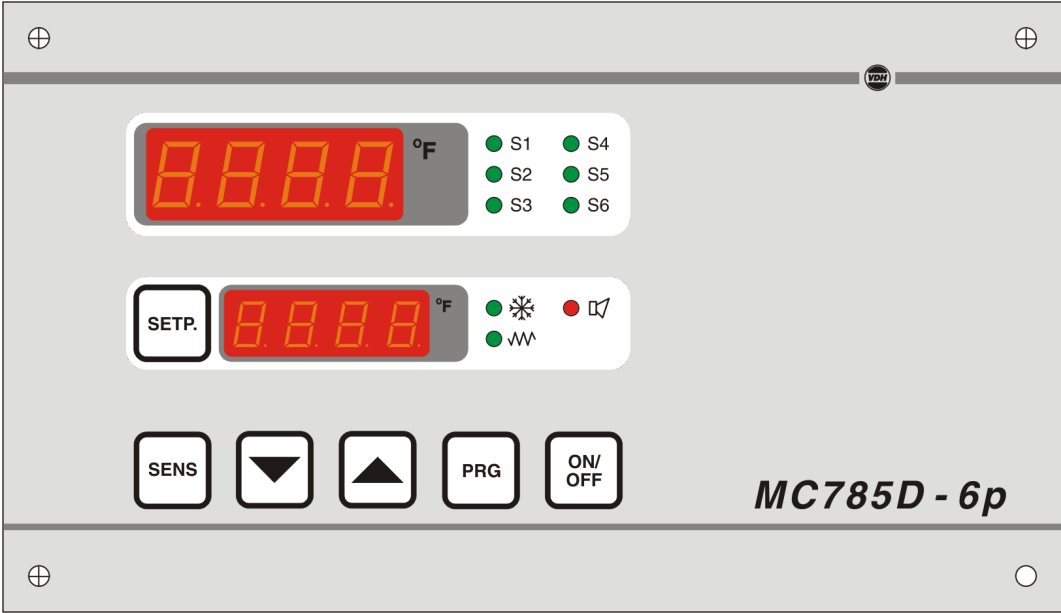
No control sensor: F1 = No control sensor present

Sensor failure:

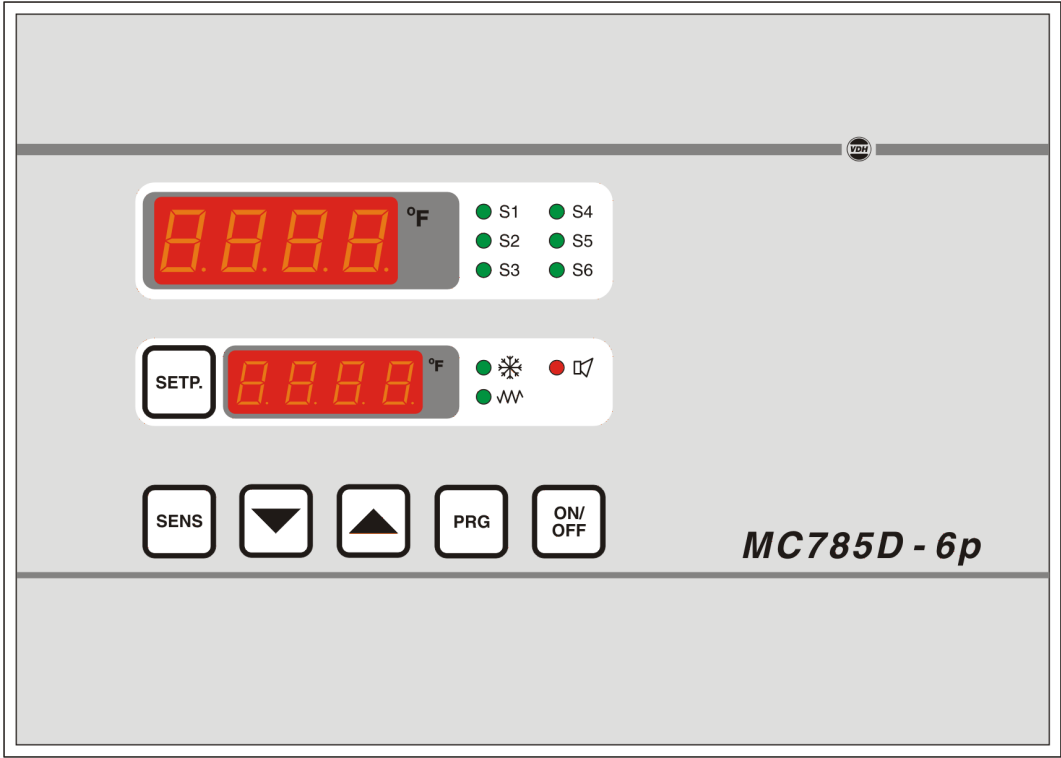
- E1 = Sensor 1 broken
- E2 = Sensor 2 broken
- E3 = Sensor 3 broken
- E4 = Sensor 4 broken
- E5 = Sensor 5 broken
- E6 = Sensor 6 broken

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8. Front views



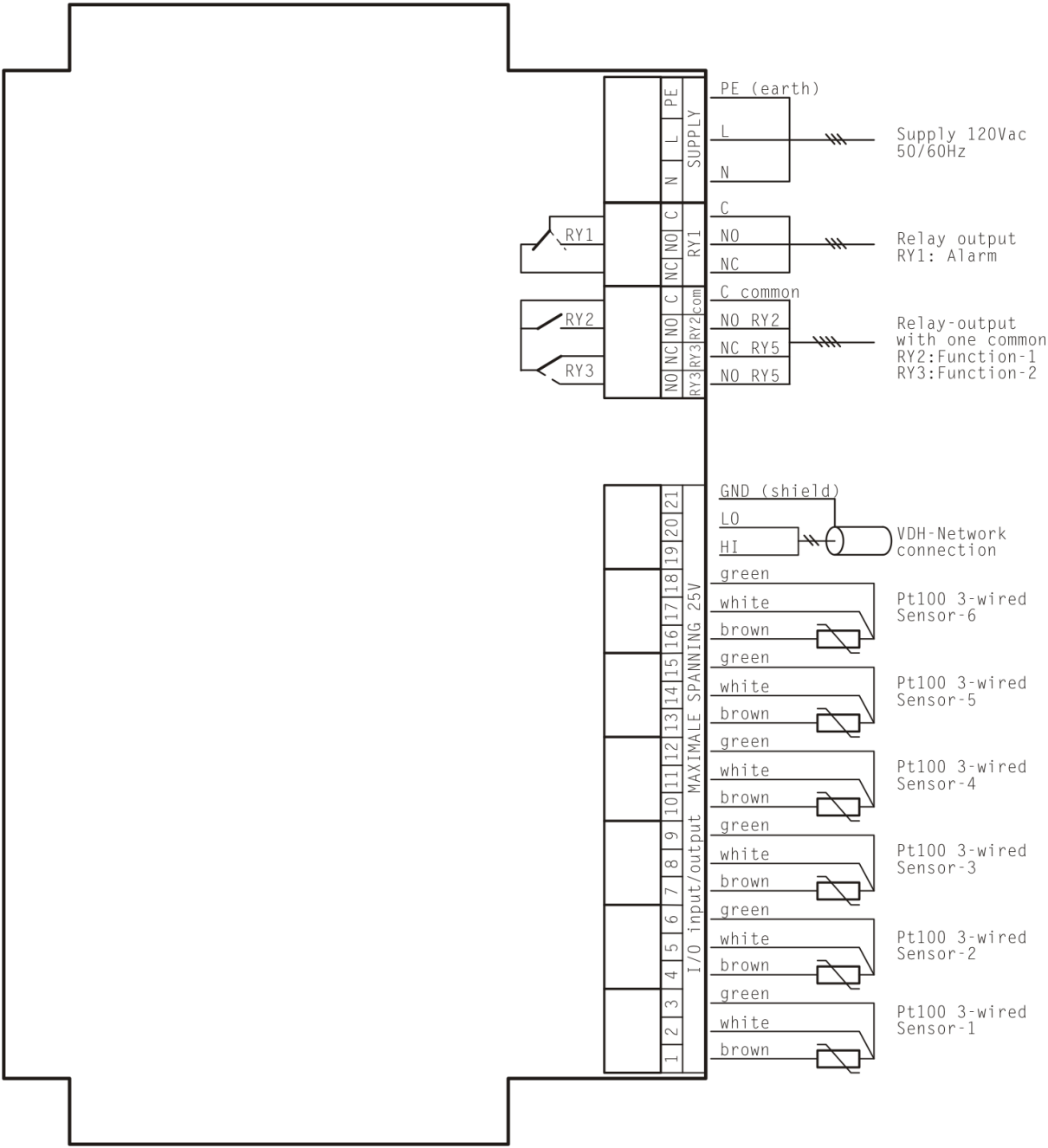
Drawing 061779: Wall mounting



Drawing 061776: Panel mounting

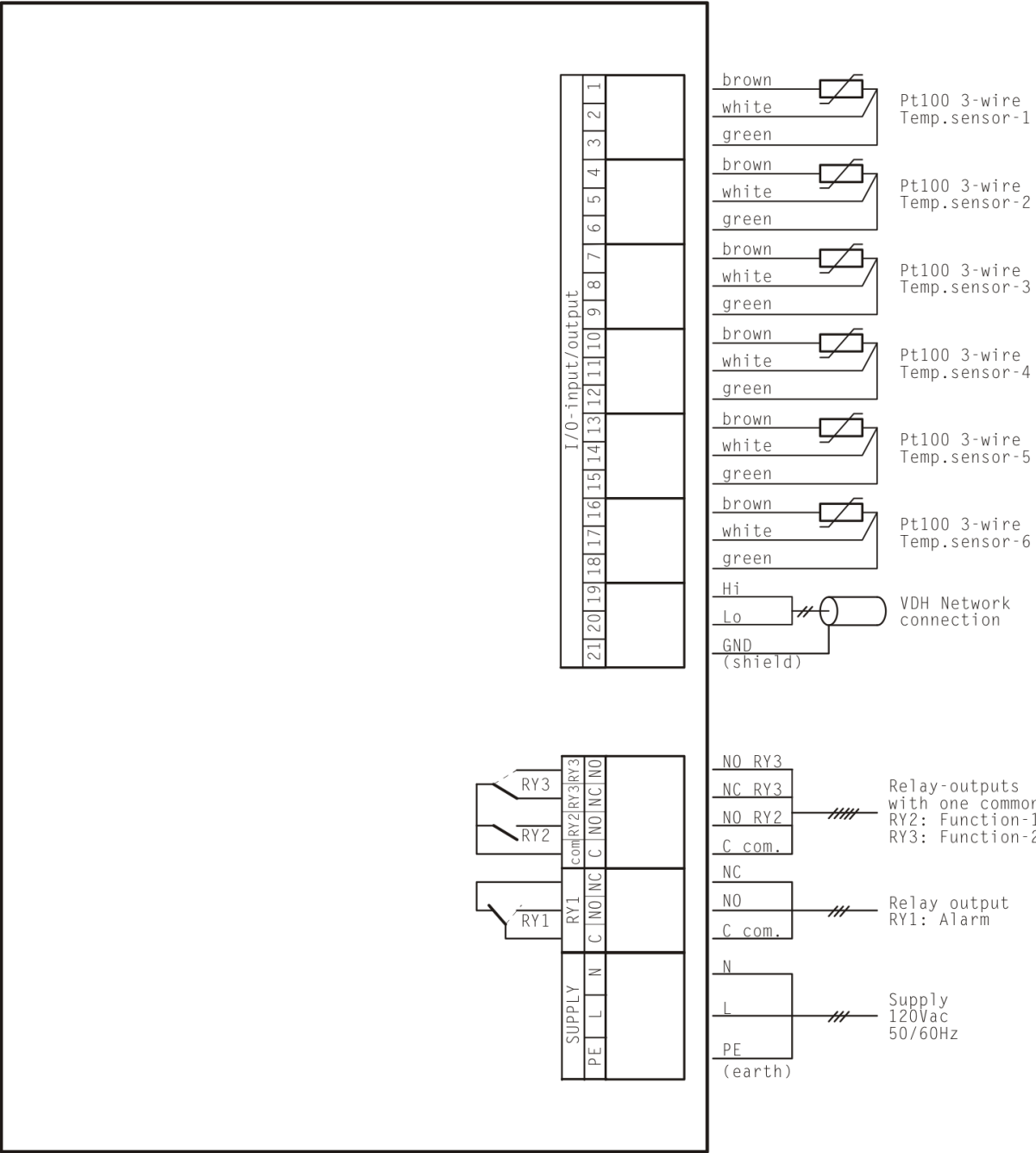
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9. Connection diagram



Drawing 061675: Wall mounting

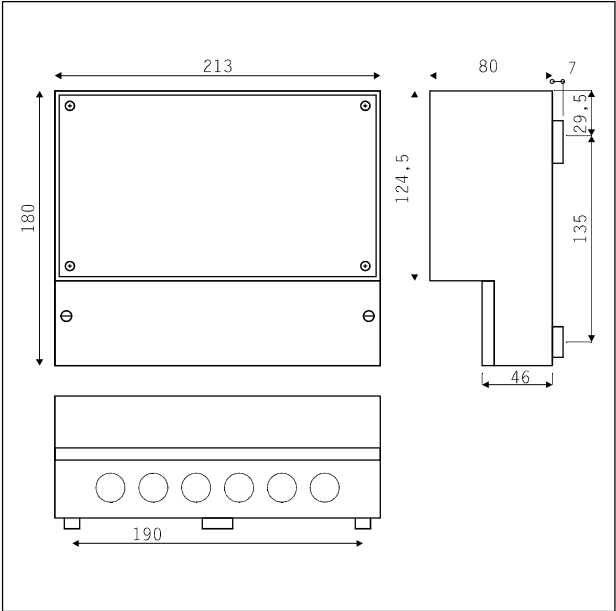
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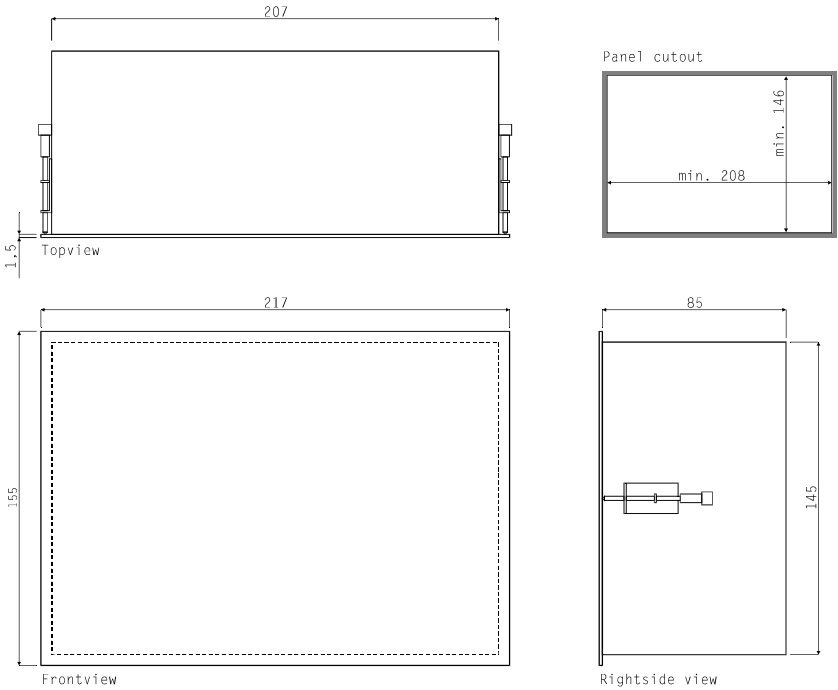
Drawing 061778: Panel mounting

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10. Dimensions



MC785-serie wall mounting drawing 940024



MC785-serie panelmounting drawing 961271

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